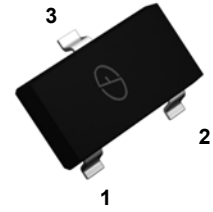


Features

- High collector current
- SOT-323 plastic package
- For General AF Applications
- High Current Gain
- Low Collector-Emitter Saturation Voltage



SOT-323

1. BASE
2. EMITTER
3. COLLECTOR

Absolute Maximum Ratings

($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Rating	Unit
Collector-Base Voltage	V_{CBO}	50	V
Collector-Emitter Voltage	V_{CEO}	45	V
Emitter-Base Voltage	V_{EBO}	5.0	V
Collector Current - Continuous	I_{C}	0.5	A
Collector Power Dissipation	P_{C}	0.2	W
Thermal Resistance from Junction to Ambient	$R_{\theta\text{JA}}$	625	$^{\circ}\text{C}/\text{W}$
Junction Temperature	T_{J}	-55 to +150	$^{\circ}\text{C}$
Storage Temperature Range	T_{STG}	-55 to +150	$^{\circ}\text{C}$

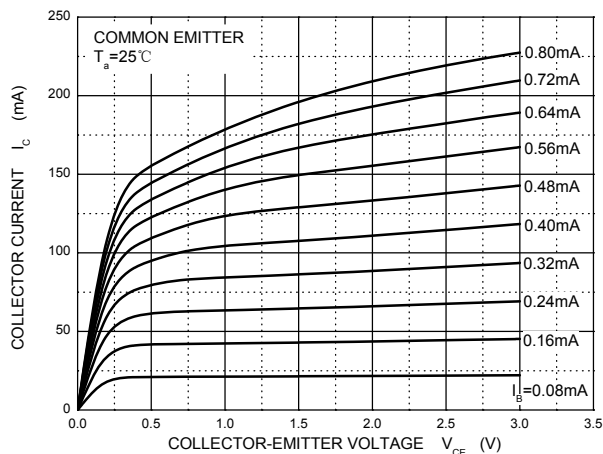
$h_{\text{FE}(1)}$ Classifications

h_{FE} Classifications Symbol	GSBC817-16W	GSBC817-25W	GSBC817-40W
h_{FE} Range	100 to 250	160 to 400	250 to 600
Marking	6A	6B	6C

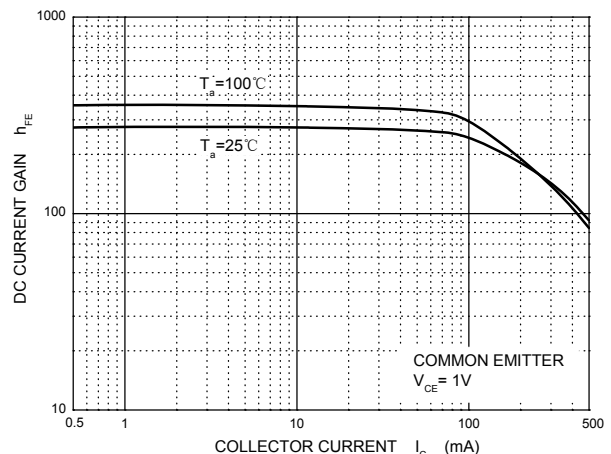
Electrical Characteristics ($T_A=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=10\mu\text{A}, I_E=0$	50	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=10\text{mA}, I_B=0$	45	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=1\mu\text{A}, I_C=0$	5	-	-	V
Collector Cut-off Current	I_{CBO}	$V_{CB}=20\text{V}, I_E=0$	-	-	0.1	μA
Emitter Cut-off Current	I_{EBO}	$V_{EB}=5\text{V}, I_C=0$	-	-	0.1	μA
DC Current Gain	$h_{FE(1)}$	$V_{CE}=1\text{V}, I_C=100\text{mA}$	100	-	600	
	$h_{FE(2)}$	$V_{CE}=1\text{V}, I_C=500\text{mA}$	40	-	-	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=500\text{mA}, I_B=50\text{mA}$	-	-	0.7	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=500\text{mA}, I_B=50\text{mA}$	-	-	1.2	V
Base-Emitter Voltage	$V_{BE(ON)}$	$V_{CE}=1\text{V}, I_C=500\text{mA}$	-	-	1.2	V
Transition Frequency	f_T	$V_{CE}=5\text{V}, I_C=10\text{mA}, f=100\text{MHz}$	100	-	-	MHz
Collector Output Capacitance	C_{ob}	$V_{CB}=10\text{V}, f=1\text{MHz}$	-	-	5	pF

Typical Characteristic Curves ($T_A=25^\circ\text{C}$ unless otherwise specified)

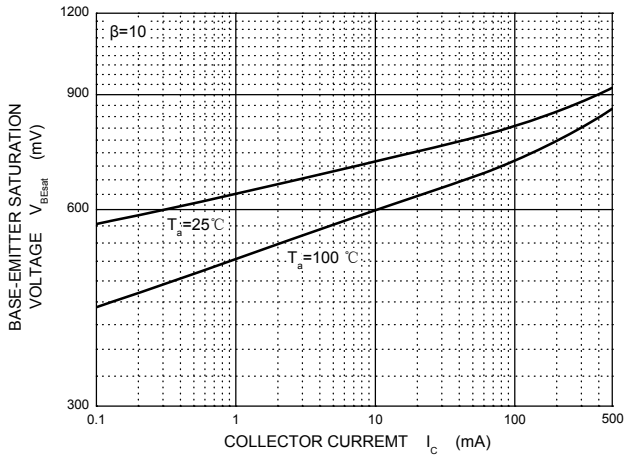


Static Characteristic

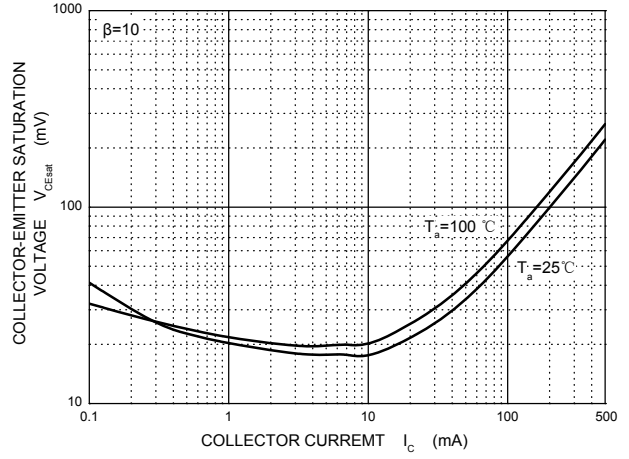


h_{FE} — I_C

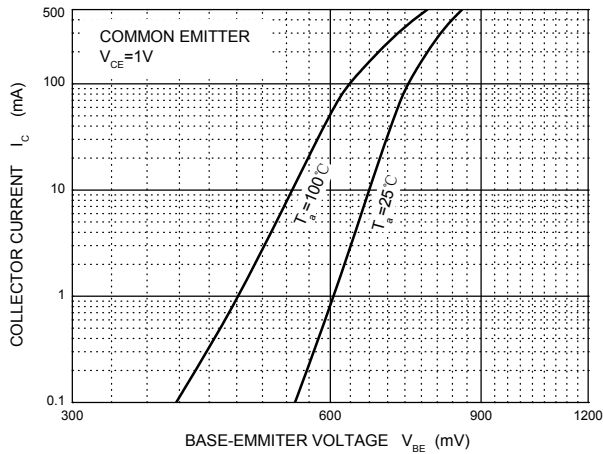
Typical Characteristic Curves ($T_A=25^\circ\text{C}$ unless otherwise specified)



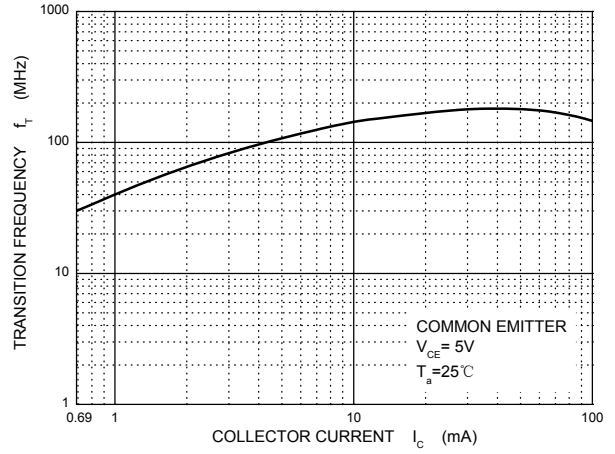
V_{BEsat} — I_c



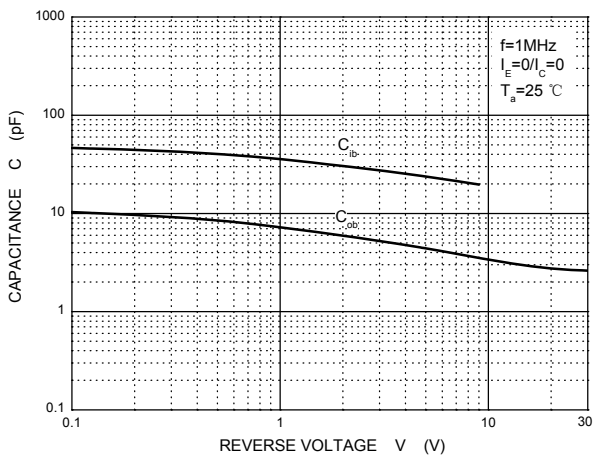
V_{CEsat} — I_c



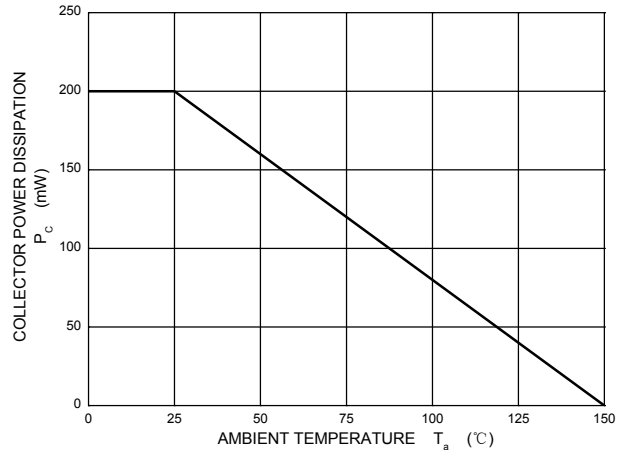
I_c — V_{BE}



f_T — I_c

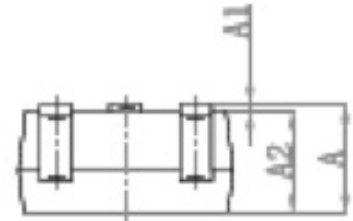
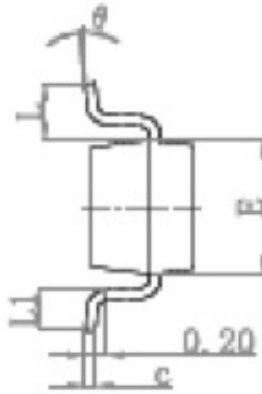


C_{ob}/C_{ib} — V_{CB}/V_{EB}



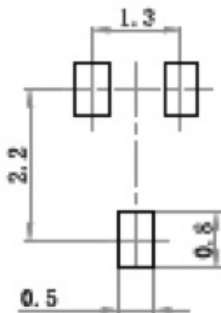
P_c — T_a

Package Outline Dimensions SOT-323



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.200	0.400	0.008	0.016
c	0.080	0.150	0.003	0.006
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.450	0.085	0.096
e	0.650 TYP		0.026 TYP	
e1	1.200	1.400	0.047	0.055
L	0.525 REF		0.021 REF	
L1	0.260	0.460	0.010	0.018
theta	0°	8°	0°	8°

Suggested Pad Layout



- Note:
1. Controlling dimension: in millimeters.
 2. General tolerance: $\pm 0.05\text{mm}$.
 3. The pad layout is for reference purposes only.